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- (71) Applicant (for all designated States except US): BAE SYSTEMS INFORMATION AND ELECTRONIC SYSTEMS INTEGRATION INC. [US/US]; 65 Spit Brook Road, NHQ01-719, Nashua, NH 03061 (US).
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- (75) Inventor/Applicant (for US only): SETZLER, Scott, D. [US/US]; 32 Forest Street, Manchester, NH 03102 (US).
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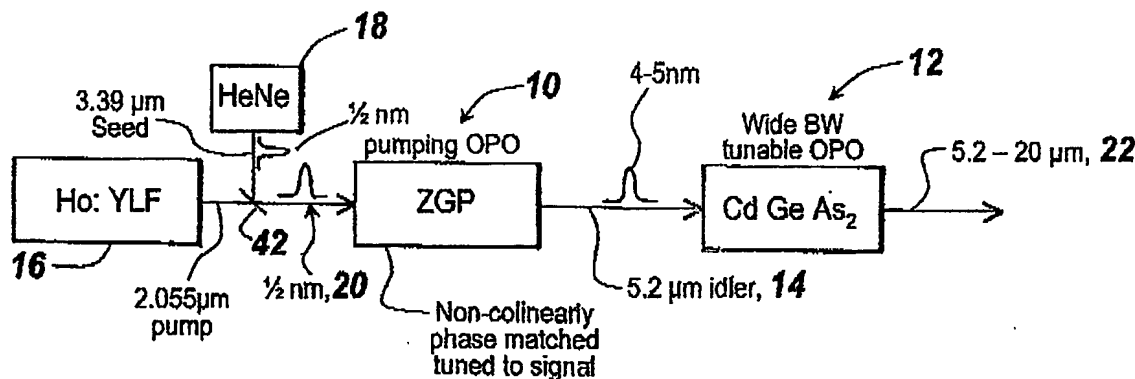
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(54) Title: METHOD AND APPARATUS FOR GENERATING MID AND LONG IR WAVELENGTH RADIATION



(57) Abstract: A narrow line width optical parametric oscillator (OPO) is used as a pump for a tunable optical parametric oscillator to enable it to produce a mid and long wavelength IR output over a wide 5-20 micron bandwidth. The pumping OPO is then set up to be non-collinearly phase matched. To enable the pumping OPO to exhibit the narrow line width, it is seeded with a narrow line width seeding source. The result is output energy having an extremely narrow 4 nanometer line width. The narrowness of the pumping OPO output is derived first by using non-collinear phase matching in the pumping OPO and secondly by using seeding in the pumping of the pumping OPO.

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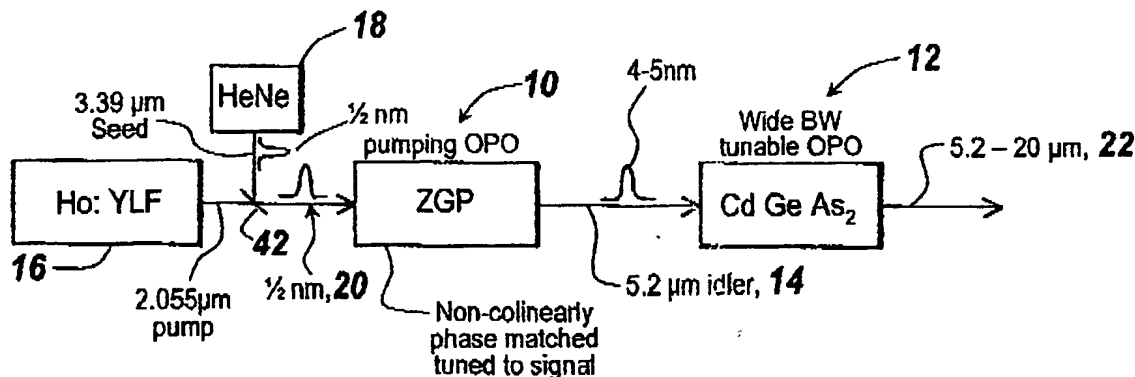
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(57) Abstract: A narrow line width optical parametric oscillator (OPO) (10) is used as a pump for a tunable optical parametric oscillator to enable it to produce a mid and long wavelength IR output over a wide 5-20 micron bandwidth. The pumping OPO (10) is then set up to be non-collinearly phase matched. To enable the pumping OPO (10) to exhibit the narrow line width, it is seeded with a narrow line width seeding source. The result is output energy having an extremely narrow 4 nanometer line width. The narrowness of the pumping OPO (10) output is derived first by using non-collinear phase matching in the pumping OPO (10) and secondly by using seeding in the pumping of the pumping OPO (10).

WO 2005/003845 A3

INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H01S 3/10; H03F 7/00

US CL : 372/22, 372/20

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 372/22, 372/20

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,457,707 (SOBEY ET AL) OCTOBER 10, 1995, FIGURE 1	1-4
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Y		10,14-16
Y	US 5,144,630 (LIN) SEPTEMBER 1, 1992 ABSTRACT	10,11,14
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A		5,17-19

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

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